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RED HILLS MANAGEMENT PLAN

AND

ENVIRONMENTAL ASSESSMENT

(Draft)

au of Land Managment

Bakersfield District

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63 Natoma Street
Folsom, California 95630

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Dear Reviewer:

Enclosed for your review and comment is the draft Red Hills Management Plan and Environmental Assessment. This plan and assessment outlines possible actions and alternatives for managing the use of approximately 7100 acres of public lands in the Red Hills of Tuolumne County (Map 1).

Comments concerning this management plan and assessment will be considered in the preparation of the final management plan and environmental assessment. Written comments should be received at the address below no later than ~~March~~ April 20, 1984. Comments received after the review period will be considered in the decision process, even though they may be too late to be considered in the final plan and assessment.

You will automatically receive a copy of the Final Red Hills Management Plan and Environmental Assessment, unless you indicate otherwise. Your interest and comments are appreciated in the development of a management plan for your public lands. Please address your comments to:

D. K. Swickard
Bureau of Land Management
Folsom Resource Area
63 Natoma Street
Folsom, California 95630
(916) 985-4474

Sincerely,

D. K. Swickard

D. K. Swickard
Area Manager

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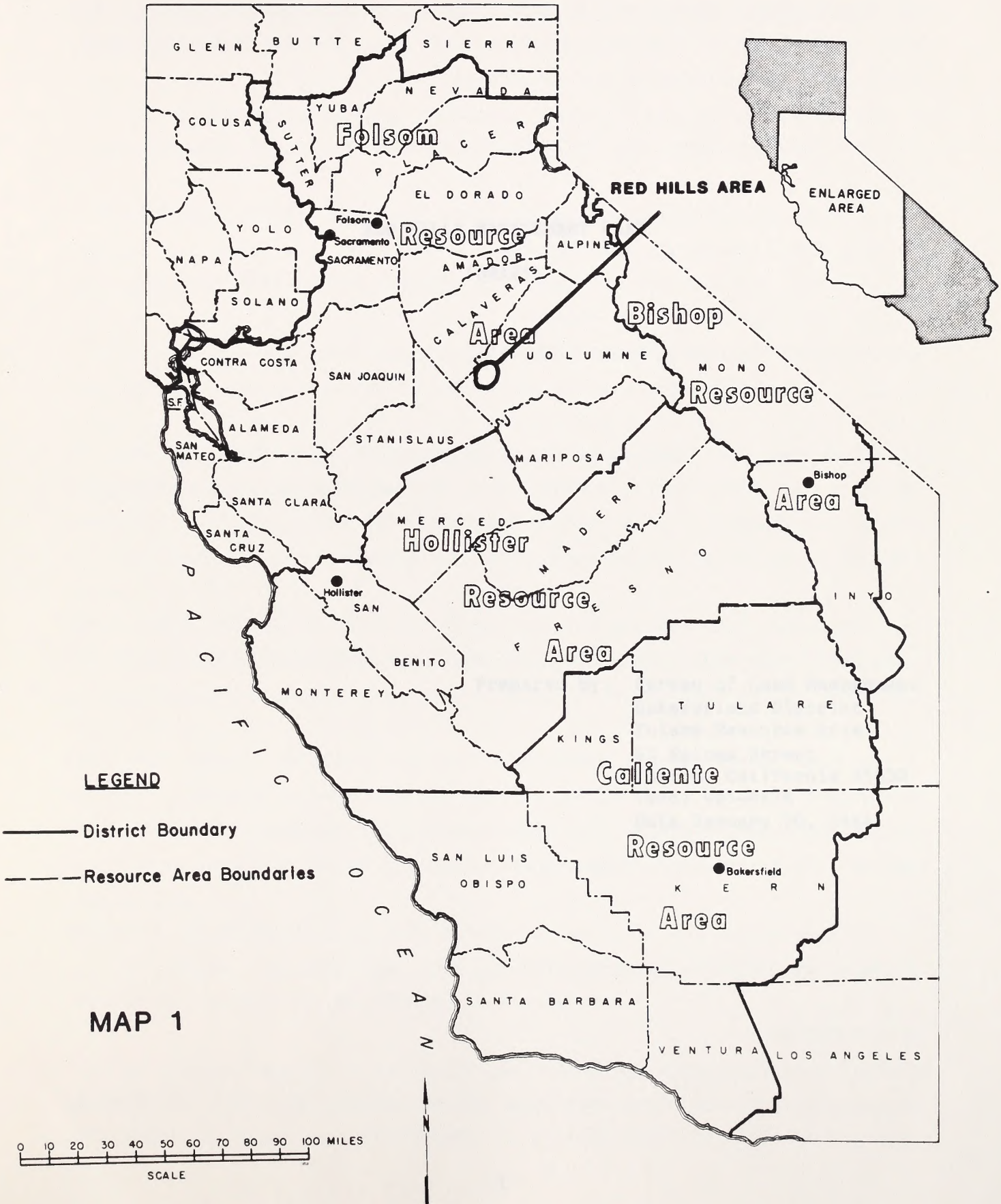
Bakersfield District

GENERAL LOCATION OF THE RED HILLS AREA



BLM CA TD 84 005 1608

RED HILLS MANAGEMENT PLAN

(DRAFT)

Prepared by: Bureau of Land Management
Bakersfield District
Folsom Resource Area
63 Natoma Street
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(916) 985-4474
Date January 20, 1984

A. INTRODUCTION

The Red Hills Management Plan is a multiple-use plan using the coordinated resource management concept. Rather than prepare separate activity plans (such as a Recreation Management Plan, Habitat Management Plan, etc.), this plan addresses all activities.

This plan addresses the following issues:

(1) Protection of sensitive plant species and Bald eagle habitat.
(2) Land Tenure Adjustment.
(3) Unauthorized Use (fuelwood trespass and illegal dumping).
(4) Indiscriminate shooting.
(5) Off-road vehicle (ORV) use.
(6) Wildfires.

This plan will implement Management Framework Plan (MFP) decisions set forth in the 1983 Sierra Planning Area MFP and will be implemented under Sikes Act authority with the California Department of Fish and Game (CDF&G).

The public has expressed a continued interest in the Red Hills area, especially concerning recreation and sensitive plants, and their input has been used in the development of this plan.

A Draft Environmental Assessment (EA) was prepared on the Red Hills Management Plan. It assess the various alternatives considered. The Plan and EA are being sent out for public review and comment. The Final Plan and EA will be prepared using comments received on the draft.

Site-specific EAs will be developed for each project or group of projects as the plan is implemented.

B. OBJECTIVES

1. Protect the five sensitive plant species and their habitat to ensure that their official listing is unnecessary.

2. Protect and maintain digger pine roosting habitat as existing in 1984 on public land along the west shoreline of Don Pedro Reservoir.

3. Protect sufficient acreages of unique soils for future study and preservation.

4. Eliminate vandalism, resource damage, and littering caused by indiscriminate shooting.

5. Provide suitable areas for off-road vehicle use. Meet the current demand for organized ORV events. Provide for unorganized ORV activity year long.

6. Improve available habitat for resident wildlife species by providing permanent water sources for every one mile radius.

7. Eliminate unauthorized use in the Red Hills (especially illegal dumping and fuelwood trespass).

8. Reduce surface disturbing activities caused by wildfire suppression.

9. Provide opportunity to meet the existing demand for viewing the area's spring wildflower displays.

C. CONSTRAINTS

1. All discretionary proposals that will cause surface disturbance will have sensitive plant clearances, performed in the appropriate flowering season.

2. Winter roosting areas for the Southern Bald eagle will be protected as required by the Endangered Species Act.

3. Archaeological sites will be protected from surface-disturbing activities. Specific stipulations will be developed for each Project Environmental Assessment.

4. Maintain 600 lbs/acre of residual mulch after grazing for lands under lease.

5. Valid mining claims have prior existing rights as provided by the mining laws. Surface disturbance on mining claims is regulated by surface management regulations (43 CFR 3809).

6. A R&PP lease closes the area to mining and prohibits any uses by the Bureau that are incompatible with the lease.

D. PLANNED ACTIONS

1. Designate 4,500 acres as a Restricted Use Zone (RUZ) as a primary protective measure for the sensitive plants and soils and limit cumulative surface disturbance to a maximum of 5 percent. Close the Restricted Use Zone to ORV activity and nominate as an Area of Critical Environmental Concern (ACEC).

2. Protect riparian areas from discretionary surface disturbance along with the entire population of California Verbena.

3. Protect 90 percent of the population (estimate to be obtained from sensitive plant contract) of Congdon's lomatium and Red Hills soaproot from discretionary surface disturbance in the Intensive Use Zone (IUZ) and 95 percent of the population in the RUZ.

4. Protect 95 and 98 percent of the population (estimate to be obtained from sensitive plant contract) of Rawhide Hill onion from discretionary surface disturbance in the IUZ and RUZ, respectively.

5. Contract a study to better determine distribution and densities of sensitive plant species. Allow no surface disturbance in Management Area until the study is completed and evaluated.

6. Dispose of the 40 acre tract (T. 1 S., R. 13 E., Sec. 1 SW¼SW¼) with the following deed restrictions:

a. Prohibit surface disturbance of known Coyote thistle habitat (see Map 3).

b. Prohibit the building of structures or other improvements on known Coyote thistle habitat.

c. Allow authorized officials the right to inspect the property to insure compliance with deed restrictions.

7. Sign riparian areas along major access routes.

8. Monitor surface disturbance to sensitive plant habitat by means of low level (1:7000) aerial photography taken at 3-year intervals.

The preceding planned actions will insure the protection of sensitive plant species and their habitat so that official listing by Fish and Wildlife Service will be unnecessary.

9. Lock the gate to Six Bit/Poor Man's Gulch during winter.

This action will ensure the protection and maintenance of winter roosting sites for Bald eagles and reduce road damage.

10. No discretionary surface disturbance will be permitted in 110 acres designated as protected soil sites. This action will ensure the protection of a minimum of 110 acres of a unique soil type for future study and preservation.

11. Allow military maneuvers for training purposes in the Intensive Use Zone under a Memorandum of Understanding to include:

a. Squad and platoon infantry level activities using blank ammunition.

b. Support vehicles used to carry equipment to the site are not permitted off established roads.

c. Policing the area prior to departure.

d. Maintaining any roads damaged by these maneuvers.

12. Encourage the adoption of a county ordinance to eliminate indiscriminate shooting in the Red Hills.

13. Clean up existing dump sites and litter; convert dump in Section 17 into a shooting area.

These preceding actions will eliminate vandalism, resource damage and littering associated with indiscriminate shooting and military maneuvers.

14. Designate 2,600 acres as an Intensive Use Zone and allow a cumulative surface disturbance of up to 20 percent. Within this zone ORV events and activity will be limited to designated roads and trails.

15. Retain 30.5 miles of roads. Put to bed 7.2 miles of trails. Construct 1.1 mile of ORV trail. Trails put to bed will be blocked off, scarified, and allowed to revegetate naturally.

16. Develop an ORV staging area by fencing the area, installing two vault toilets, six fire rings and one dumpster.

17. Sign points of entry and exit in the Management Area. Place interpretive signs at all major entrances into the Management Area.

These actions would provide suitable areas for ORV use and meet the demand for organized ORV events and unorganized ORV activity year long.

18. Cooperate with Department of Fish and Game on wildlife releases in Six Bit and Poor Mans Gulch.

19. Install two water guzzlers for upland game.

20. Issue no new grazing leases.

21. Allow no fuelwood sales within the Management area.

These actions will improve available habitat for resident wildlife species.

22. Develop a cooperative agreement with Tuolumne County Sheriff Department to patrol the Management Area. This action will eliminate unauthorized use in the Red Hills Management Area.

23. Coordinate with California Department of Forestry to develop a Modified Suppression Plan for the Restricted Use Zone.

24. Detail an Environmental Specialist to all wildfires in the Red Hills. These actions will reduce surface disturbance resulting from fire suppression activities.

25. Protect a 100 yard wide wildflower view zone on both sides of Red Hills Road from point A to point B and close to ORV use except for designated entry points (See Map 4). This action will meet the existing demand for opportunities to view spring wildflower displays.

E. PROGRAM COST ESTIMATES

Action	Work Months	Cost ($)
Monitoring	1.0	--
Land Sale	1.0	--
Water Developments	1.0	4,000
Monitor rare plant habitat	.25	3,500
Contract study for rare plants	.5	10,000
Develop mod. supp. plan	.5	--
Develop coop. agree. w/T. Co.	.25	5,000
Construct Shooting Area	.5	--
ACEC designation process	3.0	--
Sign program	1.0	1,500
Litter removal	1.0	--
Develop stagging area	.5	2,000
Install gate	.25	300
Total WM	= 10.75	26,300

WM Cost = 26,875
Total Cost = 53,175

F. MONITORING

1. Flora & Fauna

Wildlife habitat conditions will be monitored in conjunction with CDF&G. Joint inspections will be conducted at least annually. Vegetation plots and photo plots will be established. Low level (1:7000) aerial photography taken at 3-year intervals will be used to monitor surface disturbance. Monitor Bald eagle habitat and populations annually.

2. Recreation

During the implementation of this Management Plan, brief questionnaires will be made available for the users of this area to fill out and return. This will provide data on the number in each party, purpose of visit, length of stay, hometown, etc.

After organized ORV events, the club or sponsor of each event will be required to furnish BLM with the number of participants, number of vehicles, length of stay, problems encountered, and any other information the authorized officer requests.

3. Range

The BLM and grazing lessee will make at least one joint inspection each year. Joint inspections during the grazing season will also be conducted if either the BLM or the operator feels there is a need. During these inspections, mulch levels will be sampled using the photographic utilization method.

4. Land Use

Before and after any military maneuvers, the respective military branch will be required to furnish BLM with the number of participants, number of vehicles, length of stay, problems encountered and any other information the authorized officer requests.

5. Minerals

Conduct yearly compliance checks on claimants having submitted Notices or Plans of Operations.

G. COORDINATION WITH OTHER PROGRAMS

Being a Sikes Act Plan, it is closely coordinated with California Department of Fish and Game.

H. EVALUATIONS AND REVISIONS

Evaluations of the planned actions will be reviewed annually. Recommendations for revising or updating the Management Plan will be prepared.

This plan may be modified if data from monitoring, the results of the rare plant contract, or information from other sources reveals new concentrations of sensitive plants that need protection.

All planned actions are subject to review by the Area Manager. Modifications will be made following conference with the Department of Fish and Game and U.S. Fish and Wildlife Service.

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APPROVALS:

Folsom Resource Area Manager	Date
Bakersfield District Manager	Date
Regional Manager, Dept. of Fish & Game, Region 4	Date

RED HILLS MANAGEMENT PLAN

ENVIRONMENTAL ASSESSMENT

(DRAFT)

Prepared by: Bureau of Land Management
Bakersfield District
Folsom Resource Area
63 Natoma Street
Folsom, California 95630
(916) 985-4474

Date January 20, 1984

INTRODUCTION

To determine which alternative best resolves the issues - based on the principles of multiple-use, sustained yield, and maintenance of environmental quality; this draft environmental assessment analyzes the impacts of four alternatives. Each alternative analyzes a different allocation of resource.

The proposed action blends resource preservation and use to resolve issues and meet plan objectives and management policy. Plan development was aided by the comments received at the August 31, 1983, public meeting and by the letters, calls and discussions with interested members of the public.

Key features of the proposed action are a 4,500 acre Restricted Use Zone which is recommended for designation as an Area of Critical Environmental Concern (ACEC) and a 2,600 acre Intensive Use Zone.

The Restricted Use Zone (RUZ) has been designed to insure protection and preservation of unique soils, sensitive plant species and the endangered Bald eagle. Cumulative surface disturbance is limited to less than 5%, thus preserving 95% of the area. As further protection for the unique soils and sensitive plants, no disturbance will be allowed in riparian habitat or in 110 acres designated for soil protection. Additionally, before any surface disturbance is authorized, a sensitive plant survey and clearance will be conducted. With these protective measures established, it will be possible to consider projects or applications for land use activities within these constraints.

The Intensive Use Zone (IUZ) is designed to allow off-road vehicle travel, off-road vehicle organized events, target shooting, and other uses including military training. To improve recreational opportunities, some roads will be closed and others opened. A staging area for ORV's, toilets, fire rings and trash disposal facilities will be provided. Target shooters will be provided a safer shooting area. Total surface disturbance will be limited to 20%.

The proposed action also includes a 200 yard wide wildflower viewing zone along Red Hills Road, the posting of land boundaries, elimination of fuelwood sales, installation of water devices and plans for monitoring and enforcement.

Alternatives vary the acreages of the restricted use and intensive use zones, the percent of surface disturbance allowed, and other management factors.

All alternatives are consistent with the Sierra Management Framework Plan.

CHAPTER 1

PURPOSE & NEED

The unmanaged use of the Red Hills has resulted in resource damage and abuse. Increased demand for use of the Red Hills and the presence of sensitive resources has created a set of issues which need to be resolved. The purpose of this management plan is to resolve the following issues:

(1) Protection of sensitive plant species, Bald eagle habitat, and unique soils.
(2) Land Tenure Adjustment.
(3) Unauthorized use (fuelwood trespass and illegal dumping).
(4) Indiscriminate shooting.
(5) Off-road vehicle (ORV) use.
(6) Wildfires.

The plan is needed to better coordinate the use and protection of the resources of the Red Hills.

Resolution of issues must be accomplished in a manner which meets these Plan objectives:

1. Protect the five sensitive plant species and their habitat to ensure that their official listing is unnecessary.

2. Protect and maintain digger pine roosting habitat as existing in 1984 on public land along the west shoreline of Don Pedro Reservoir.

3. Protect sufficient acreage of unique soils for future study and preservation.

4. Eliminate vandalism, resource damage, and littering caused by indiscriminate shooting.

5. Provide suitable areas for off-road vehicle use; and provide opportunities to meet the current demand for organized ORV events.

6. Improve available habitat for resident wildlife species by providing permanent water sources for every one-mile radius.

7. Eliminate unauthorized use in the Red Hills (especially illegal dumping and fuelwood trespass).

8. Reduce surface disturbing activities caused by wildfire suppression.

9. Provide opportunity to meet the existing demand for viewing the areas spring wildflower displays.

These objectives are consistent with laws, policy, regulations and the Sierra Management Framework Plan.

CHAPTER 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

Standard management practices directed by regulations and policy are applicable to all alternatives. Protection of soils, watershed, visual resources, air quality, and other resources is required by the Federal Land Policy and Management Act of 1976. Specific guidance for those measures are embodied in policy statements and regulations. In addition, compliance with specific legislation, such as the Endangered Species Act and the Antiquities Act, is required.

Alternative 1 -- Proposed Action

The proposed action attempts to balance resource protection and use. About 63 percent of the area is given a restricted use status. Primary emphasis is on protection of sensitive plant species and unique soils; secondary emphasis is on recreational uses. A sensitive plant study would be conducted in the spring of '84 to better define density and distribution and to determine a population estimate for Congdon's lomatium, Red Hill soaproot and Rawhide Hill onion.

The Restricted Use Zone limits surface disturbance to no more than 5 percent of the area. Approximately 80 acres of protected soil sites will not be disturbed to allow for future study of the unique. soils. Ninety-five percent of the populations of the lomatium and soaproot, and 98% of the onion population would be protected from discretionary surface disturbance. Designation as an Area of Critical Environmental Concern is proposed. Verbena populations will be 100% protected.

The Intensive Use Zone limits surface disturbance to 20 percent and limits ORV activity to designated roads and trails. Seven miles of roads and trails will be closed and one mile opened to protect resources and enhance recreational opportunities. Approximately 30 acres of unique soil sites that occur within this zone will be protected for future study. Ninety

percent of the populations of lomatium and soaproot plant and 95 percent of the onion population will not be disturbed. Verbena populations will be 100% protected.

Additional recommendations and details of the proposed action are shown on Table 1 and Maps 3 and 4.

Alternative 2 -- Maximum Use

The maximum use alternative favors a higher degree of use and development, while still meeting the principles of multiple use, sustained yield, and maintenance of environmental quality. A sensitive plant study to determine a population estimate, distribution and density for some plants would also be conducted.

The Restricted Use Zone would consist of 52 percent of the area with 10% cumulative surface disturbance allowed. This zone would not be recommended as an ACEC. Ninety percent of the lomatium and soaproot populations would be protected from discretionary surface disturbance. Ninety-five percent of the Verbena and onion populations would be protected. Forty acres of unique soils would be protected for future study.

In the Intensive Use Zone, 25 percent surface disturbance would be allowed.

ORV activity would be limited to 24 miles of designated roads and trails. Ninety percent of the Verbena and onion populations and 80 percent of the lomatium and soaproot populations would be protected from discretionary surface disturbance.

Additional recommendations and details of the proposed action are shown on Table 1 and Maps 5 and 6.

Alternative 3 -- Minimum Use

The minimum use alternative greatly favors protection of resources over resource utilization. A sensitive plant study would be conducted as in Alternatives 1 and 2.

The Restricted Use Zone is 63% of the area with a 2% cumulative surface disturbance allowance. Approximately 900 acres of unique soil would be protected for future study. One hundred percent of the populations of the lomatium, soaproot, onion and Verbena would be protected from discretionary surface disturbance. The RUZ is closed to ORV use and recommended for an Area of Critical Environmental Concern.

The Intensive Use Zone is restricted to 10% surface disturbance and limits ORV activity. to designated roads and trails. Only 9 miles of roads and trails are retained and 15 miles of roads and trails would be rehabilitated. Approximately 80 acres of unique soil sites will be protected. 100 percent of the populations of lomatium, soaproot, onion and Verbena would be protected.

Additional recommendations and details of this alternative are shown on Table 1 and Maps 7 and 8.

Alternative 4 -- No Action

This alternative perpetuates current management, where use and protection is handled on a case-by-case basis as shown in Table 1 and Map 9.

TABLE 1 ALTERNATIVES

Program	Alternative 1 Proposed Action	Alternative 2 Maximum Use	Alternative 3 Minimum Use	Alternative 4 No Action
Surface Protection	Designate 4,500 acres as a Restricted Use Zone and limit cumulative surface disturbance to less than 5 percent. Close to ORV use and nominate as an ACEC. Protect 100 percent of Verbena; 95 percent of lomatium and soaproot and 98 percent of onion populations.	Designate 3,700 acres as a Restricted Use Zone and limit cumulative surface disturbance to less than 10 percent. Close to ORV use. Do not nominate for ACEC. Protect 95 percent of Verbena and onion populations; and 90 percent of lomatium and soaproot populations.	Same as Alternative 1, but limit surface disturbance to less than 2 percent. Protect 100 percent of all sensitive plant populations.	South half is closed to ORV activity and surface disturbing activities are considered on a case-by-case basis.
	Designate 2,600 acres as an Intensive Use Zone and limit cumulative surface disturbance to less than 20 percent. Restrict ORV activity to designated roads and trails. Protect 100 percent of Verbena; 90 percent of lomatium and soaproot, and 95 percent onion populations.	Designate 3,400 acres as an Intensive Use Zone and limit cumulative surface disturbance to less than 25 percent. Restrict ORV activity to designated roads and trails. Protect 80 percent of lomatium and soaproot populations. Protect 90 percent of Verbena and onion populations.	Same as Alternative 1, but limit surface disturbance to less than 10 percent. Protect 100 percent of all sensitive plant populations.	North half of management area is open to ORV use and surface disturbance.
	No surface disturbance in riparian habitats, and 110 acres of protected soil sites.	No surface disturbance on 40 acres of protected soil sites no protection of riparian habitat in the Intensive Use Zone.	Same as 1, plus additional 870 acres of protected soil sites.	No protection of riparian habitat or soil. Plants protected case-by-case basis.
Lands	Dispose of 40 acre tract (T. 1 S., R. 13 E., Sec. 1, $SW\frac{1}{4}SW\frac{1}{4}$) with deed restrictions to protect sensitive plants.	Same as Alternative 1, but without deed restrictions.	Retain 40 acre tract.	Same as Alternative 3.

TABLE 1 ALTERNATIVES

Program	Alternative 1 Proposed Action	Alternative 2 Maximum Use	Alternative 3 Minimum Use	Alternative 4 No Action
Lands	Allow military maneuvers for training purposes in the Intensive Use Zone.	Allow military maneuvers throughout the management area.	No military maneuvers allowed.	Military maneuvers only in the north half of management area.
	Encourage adoption of county ordinance to eliminate indiscriminate shooting. Develop cooperative Agreement with Sheriff's to patrol area.	Same as 1.	Same as 1.	Allow indiscriminate shooting. No Cooperative Agreement with county.
Flora & Fauna	Protect 200 yard wide view zone from surface disturbing activities except at ORV entry points.	No view zone protected.	Protect entire Red Hills Road "Canyon" except at ORV entry points and shooting area.	Same as 2.
	Contract rare plant study to determine distribution and desities of sensitive plant species. Allow no surface disturbance in Management Area until the study is completed and evaluated.	Same as 1.	Same as 1.	No rare plant study contract.
Flora & Fauna	Take aerial photographs at 3 year intervals to monitor disturbance to plant habitat.	Same as 1, but taken yearly.	Occular reconnaissance yearly.	Same as 3.
	Install 2 wildlife guzzlers.	Install 4 guzzlers.	Same as 1.	No guzzlers installed.
	Cooperate with Fish & Game on releases of wild turkeys.	Same as 1.	No wildlife releases.	Same as 1.

TABLE 1 ALTERNATIVES

Program	Alternative 1 Proposed Action	Alternative 2 Maximum Use	Alternative 3 Minimum Use	Alternative 4 No Action
Flora & Fauna	Allow no fuelwood sales.	Allow sale of 9 cords/ yearly.	Same as 1.	Allow fuelwood sales.
Recreation	Sign points of entry & exit in management area. Place interpretive signs at all major entrances. Sign riparian areas. Sign Intensive Use Area.	Same as 1.	Same as 1.	No sign program.
	Develop the 5 acre ORV staging area by fencing the area, installing toilets, fire rings & dumpster.	Same as 1.	Rehab. and prevent ORV use in existing "staging" area.	No developed staging area.
	Construct shooting area in Section 17.	Construct shooting areas in Sections 17 and 27.	Same as 1.	No designated shooting area.
	Lock gate to Poor Man's Gulch.	Leave gate open.	Same as 1.	Same as 1.
	Retain 30.5 miles of roads. Put to bed 7.2 miles of trails. Construct 1.1 mile of ORV trails.	Retain 37.7 miles of roads. Construct 2.5 miles of ORV trails.	Retain 19.2 miles of roads. Put to bed 18.5 miles of ORV trails.	Retain the 37.7 miles of road & trails.
Grazing	Issue no new grazing lease.	Open area to grazing.	Same as 1.	Same as 1.
Fire Suppression	Develop modified suppression plan for Restricted Use Zone to reduce the destruction of sensitive plant habitat by suppression activities using heavy equipment.	No modified suppression plan. Minimal constraints on line preparation.	Same as 1.	Same as 2.

TABLE 1 ALTERNATIVES

Program	Alternative 1 Proposed Action	Alternative 2 Maximum Use	Alternative 3 Minimum Use	Alternative 4 No Action
ire Suppression	Detail Environmental Specialist to all wild-fires.	Same as 1.	Same as 1.	Same as 1.
	No prescribed burning.	Prescribe burn 1,500 acres to reduce fuel load.	Same as 1.	Same as 1.

CHAPTER 3

AFFECTED ENVIRONMENT

1. General Features:

Location and Access -- The Red Hills area is located in western Tuolumne County immediately southwest of Chinese Camp. This area consists of 7,100 acres of public land. Public access is excellent. Most of the area is accessible via two-wheel drive vehicle.

Topography -- Most of the area consists of moderately sloped hills (30% slope) of intermediate elevation (750 - 1,750[1]).

Climate -- Average rainfall for the area is approximately 25-30 inches per year, with 85-90% falling between November and April. Winter temperature average is 47°F (range 14-82°F). Summer temperature average is 74° (range 35-109°F).

Geology and Soils -- Basically the geology of the Red Hills consist of dunite, a rock composed of dark green olivine, with minor chronite, which has partly to entirely been serpentinized. The age of this rock is probably Mesozoic.

The Red Hills area is almost entirely of soils of the Delpiedra and Henneke series. Delpiedra soils are formed from serpentinite. The subsoil is reddish brown to yellowish red, neutral, and clay loam. These soils are shallow (1-2 ft.), well drained, rock soils with low fertility. Henneke soils are also formed from serpentinite. The surface is reddish brown, neutral, and stony clay loam to very gravelly loam. These soils are deeper than the Delpiedra soils (i.e., 2-3 ft.), poorly drained, and. have a low available water capacity.

The red, iron-rich soil found in the Red Hills is thought by some soil scientists to have been formed under an earlier tropical climate. Other

soil scientists hypothesize that this red soil is being formed under present day climatic conditions. The latter theory is a revolutionary concept for the earth sciences. Preservation of the soil is required for investigations into this controversy.

In addition, the soil found here is a component of an unique ecosystem. Study of the soil may hold answers to understanding plant growth, and the reason for the coexistence of native grasslands and forests.

2. Resources and Their Use:

Vegetation -- The Delpiedra soils generally support buckbrush and digger pine in a savannah type arrangement. The deeper Henneke and Henneke/Delpiedra soils support blue oak, manzanita, and toyon, as well as buckbrush and digger pine. The most common annual grasses are red brome, wild oats, soft chess, and nitgrass. The most abundant perennial is big squirrel tail grass.

The Red Hills is rich in spring wildflowers. Blues are provided by Brodiaea (Brodiaea gracillis) and Baby Blue Eyes (Nemophila menziesii). Bitterroot (Lewisia redeviva), the pink-colored Montana State Flower, is also found. It is unusual but not rare or endangered. Flowers of varying shades of yellow are most abundant. They include Golden Poppy (Eschscholzia californica), Frying Pan Poppy (E. lobbii), Meconella Poppy (Meconella linearis and M. californica); Tickseed (Coreopsis stillmani), goldfields (Lasthenia chrysostoma and Blennospema nanum) and Cream Cups (Platystemon californicus). Meadow Foam (Limnanthus alba) forms brilliant white rings around vernal pools. Other white flowers that might be found are sandwart (Arenaria californica), lily (Odontostomum hartwegii) and Common Soap Root(Chlorogalum pameridianum). See Appendix A for a list of common plant species found in the Red Hills.

Wildlife and Fisheries -- The most important wildlife are blacktailed deer, valley quail, coyote, morning dove, and jack rabbit. As many as 20 Bald eagles have been sighted during the winter on the shores of Lake Don Pedro. The small native minnow, the California Roach, are found in abundance in the pools of permanent water in the area. Green sunfish, large

mouth bass, Sacramento sucker, and mosquito fish were found in Six-Bit Gulch and Poor Man's Gulch where they flow into Lake Don Pedro.

Grazing -- There are 3 grazing leases on 2,255 acres within the Management Area. Currently 178 AUMs (Animal Unit Months) are allocated to livestock on a season-long basis.

Sensitive Plants -- Five plants occurring on the public lands of the Red Hills are considered by the U.S. Fish and Wildlife Service (FWS) to be candidates for listing as endangered or threatened species (Federal Register 45(242):82480-82569, December 15, 1980; FR 48(229):53640-53670, November 28, 1983), and are therefore treated as sensitive species by BLM. All are restricted to the Delpiedra soil series. Red Hills vervain (Verbena california) occurs along stream sides where water is abundant during the blooming season. Congdon's lomatium (Lomatium congdonii) and Red Hills soaproot (Chlorogalum grandiflorum) are locally common throughout the Red Hills, preferring flat areas and north facing slopes in the digger pine-buckbrush community. Rawhide Hill onion (Allium sanbornii var. tuolumnense) is much more localized in its distribution in the Red Hills. Only six small colonies of a few individuals each are known to occur in the Red Hills. The only other known location of the onion is its type locality, Rawhide Hill, west of Jamestown, where the onion is much more abundant, where several dense populations of several thousand plants are found. Most of the Rawhide Hills' plants are on private land on which a subdivision is planned. The Tuolomne coyote thistle (Erygium pinmatisectum) is located in a large vernal pool in the northwest portion of the Management Area.

Four of the five species have a very limited range, occurring only in and near the Red Hills. Except for California vervain, present knowledge of distribution and densities is incomplete (See Appendix B and C).

Two additional FWS candidate plant species occur on private lands just west of Chinese Camp and within a mile of the management area. Chinese Camp brodiaea (Brodiaea pallida) and stinkbells (Fritillaria agrestis) occur in vernally moist areas of heavy clay. Neither species has been located on the public lands of the Red Hills.

Fire History -- The heavy recreational use combined with the abundance of annual grass makes this area a high wildfire hazard area. The history of fire over the past two decades is shown in Map 2.

Minerals -- Although there is limited mineral potential in the Red Hills, there has been production of chromite, magnesite, and gold. The magnesite produced in Tuolumne County came from two deposits in the Red Hills. Currently, there is no market for magnesite. Presently there are seven placer claims in Sections 22, 23, and 26. There is a potential for lode deposits along the contacts of serpentine and the Calaveras formation and at the magnesite deposits.

Lands and Recreation -- The ownership of both the surface and mineral estate is with the United States. The area is classified for multiple-use management and retention in Federal ownership.

Due to convenient access and close proximity to Sonora and Modesto, the Red Hills attracts a variety of recreationists. The area experiences approximately 9.5 thousand visitor-use days/yr. Target shooters, 4-wheel drive enthusiasts, photographers, horseback riders, and motorcyclists use the area.

Botany students from Modesto Junior College and Columbia College and members of the California Native Plant Society annually visit the area to view the wild flower display and rare plants of the area. There is one organized ORV event each spring in the Red Hills. The Modesto Wild Bunch has a 4-wheel drive "poker run" for 2 days in April. This event usually involves about 300 people, 120 of which are involved in the race. There is a Memorandum of Understanding between the Bureau and the California National Guard, Army Reserve, and Marine Corps Reserve allowing the Red Hills to be used for "ground reconnaissance, squad and platoon exercises and terrain navigation courses". Finally, the Sonora Smoke Polers and the Civil War Skirmish Association has a Recreation and Public Purpose (R&PP) lease for a black powder shooting range on 200 acres in the western part of Section 16.

The County of Tuolumne has expressed an interest in a lease for a shooting and archery range complex which would be built to National Rifle Association standards. The proposal calls for a campground, parking area, caretaker's quarters and rifle, handgun, blackpowder, archery, and trap and skeet ranges. The proposal involves about 1,300 acres of public land. No formal application has been filed.

A commercial, industrial, and residential development (the Red Hills Planned Community and Industrial Park) is being studied by the Tuolumne County Planning Department for land near Yosemite Junction, this plan proposes acquisition of 40 acres of public land. The community could house 2,500 people by 1990.

Current recreational uses, especially target shooting, have caused resource degradation and destruction. Litter, especially abandoned targets, ammunition boxes and spent cartridges are a serious eyesore. In some places trees have literally been shot in half, creating a highly abused appearance to the area along the Red Hills' road. Soil erosion is obvious in areas of ORV use.

Cultural -- The foothill and mountain portions of the Tuolumne drainages were inhabited by the Sierra Miwok tribelets. However, no ethnographic villages are recorded for the Red Hills.

Known as the Chinese mining district, the area between Table Mountain, Woods Creek, and Red Mountain Bar on the Tuolumne River experienced extensive Placer mining, especially by the Chinese, during the 1850's and 60's. Most historic accounts, however, indicate poor diggings for the Red Hills, except for Six-Bit Gulch.

A cultural resource inventory in 1979 indicated a low density of cultural sites along the riparian zones. These sites have only a moderate cultural sensitivity. Upland areas have a low sensitivity.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter provides scientific and analytic evaluation of the alternatives, mitigating measures developed in response to identified issues, and any unavoidable adverse impacts which cannot be mitigated.

The impact analysis will concentrate on those resources described in Chapter 3 that will be subject to the most significant impacts. In some cases limitations on impact analysis occurred due to a lack of data; in such instances, knowledge of the area and professional judgement were used to identify potential impacts.

The analysis emphasizes issue related impacts.

The key issues are:

(1) Protection of sensitive plant species, Bald eagle habitat and unique soils.
(2) Land Tenure Adjustment.
(3) Unauthorized use
(4) Indiscriminate shooting.
(5) Off-road vehicle (ORV) use.
(6) Wildfires.

Other Impacts:

(1) Wildlife and Fisheries
(2) Grazing
(3) Minerals.
(4) Cultural Resources.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 -- Proposed Action

Issue 1 -- Protection of sensitive plant species, Bald eagle habitat and unique soils

Overall sensitive plant species would be positively impacted. Protection of 4,275 acres (95%) of the Restricted Use Zone from surface disturbance along with protection of 100% of Verbena, 95% of the lomatium and soaproot, and 98% of the onion populations would adequately protect these species within this zone. Protection of 2,080 acres (80%) of the IUZ from surface disturbance along with protection of 100% of Verbena population, 90% of the lomatium and soaproot populations, and 95% of the onion population affords additional protection of these species. The combined protection in both RUZ and IUZ would ensure that official listing would be unnecessary for the plants.

Bald eagles will benefit slightly from locking the gate which provides access to lands adjacent to their roosting areas. While beneficial, the positive impact will be slight due to the low level of current use on BLM land and higher use and accessibility of the roosting areas by boat from Lake Don Pedro. Eliminating fuelwood sales would ensure protection of roosting trees.

Unique soils will be fully protected on 110 identified acres,thereby ensuring an undisturbed sample of these soils. Soil will receive equal protection from 6,355 acres in the management area where no surface disturbance will be allowed. A total of 745 acres may be adversely impacted from ORV use, trail construction, and other surface disturbances.

Indirect but positive impacts on sensitive plants would result from ACEC designation and monitoring. Designation administratively identifies the area for special attention and monitoring will increase our knowledge of

habitat conditions and population status, thereby improving management ability. Other actions that would impact plants would include eliminating fuelwood sales and construction of a staging area. Since Congdon's lomatium has been associated with the drip line of digger pines, eliminating fuelwood sales would offer lomatium habitat better protection. Five acres of potential habitat for the soaproot and lomatium would be negatively impacted by a staging area. However, a designated staging area would prevent further expansion and destruction of plant habitat.

Aerial photographs taken every 3 years along with routine visits by Bureau personnel should allow for adequate monitoring of the impacts of ORV activity on erosion and sensitive plant habitat.

The impacts associated with this issue would allow for full achievement of Objectives 1, 2, and 3.

Issue 2 -- Land Tenure Adjustments

Retention of 7,060 and disposal of 40 acres would have no significant impact on resources or economics. The sale of 40 acres would add approximately $600 to the tax base annually. Deed restrictions would ensure protection of Coyote thistle habitat.

All subsequent land tenure adjustments (right-of-ways, R&PP leases, land use permits, etc.) will be considered within the constraints dictated by the two use zones.

Issue 3 -- Unauthorized Use

Developing a cooperative agreement with Tuolumne County Sheriff's Department so that they could periodically patrol the Management Area, would eliminate much of the unauthorized use (Objective No. 7) in the Red Hills. Prohibiting fuelwood sales should help reduce the problem of illegal fuelwood cutting.

Issue 4 -- Indiscriminate Shooting

The adoption of a county ordinance to eliminate indiscriminate shooting would reduce the amount of litter that has accumulated in areas where plinkers have brought and left various items to use as targets. Concentrating plinking to one area should also make conditions safer for other recreationists, and adjacent landowners. These impacts would allow for achievement of Objective No. 7.

Issue 5 -- Off-Road Vehicle Use

Off-road vehicle use would be limited to designated roads and trails in the Intensive Use Zone. As most of the ORV activity presently occurs here, there would be little negative impact to ORV opportunities. Trails to be put to bed are, in most cases, infrequently used. Construction of 1.1 mile of new trails should enhance the ORV experience by dispersing activity through the IUZ. Construction of a designated staging area would provide a centralized place for organized events and fencing the area should help curtail the spread of the random "staging" area. The Restricted Use Zone would be closed to ORV activity.

Signing property boundaries in the IUZ should help reduce conflicts between ORV users and adjacent private land owners.

The impacts associated with this issue would allow achievement of Objective No. 5.

Issue #6 -- Wildfires

Development of a modified suppression plan should reduce impacts from line preparation in the RUZ.

By not prescribe burning, fuel loads would continue to accumulate on 1,500 acres. This would lead to the increased probability of uncontrollable wildfires in the area.

The impacts associated with this issue would allow achievement of Objective No. 8.

Other Impacts:

Wildlife -- Protection of riparian habitat would benefit all fish and most wildlife species. Water guzzlers would provide a permanent water source for every 1 mile radius.

There are no significant impacts from the release of wild turkeys on resident wildlife and fish species.

Elimination of fuelwood sales would provide habitat in the form of snags and dead and down wood for wildlife.

Minerals -- ACEC designation would put constraints on mineral development in that all mining activities, other than casual use, would require a plan of operations.

Cultural Resources -- Protection of riparian habitat affords protection for most cultural sites. A modified suppression plan would limit surface disturbing activities and provide protection to cultural sites in RUZ.

Alternative 2 -- Maximum Use

Issue 1 -- Protection of sensitive plant species, Bald eagle habitat, and unique soils.

Overall, sensitive plant habitat would be marginally protected. Protection of 3,330 acres (90%) of the RUZ from surface disturbance along with protection of 95% of Verbena and onion populations and 90% of lomatium and soaproot populations should marginally protect these species within this zone. Protection of 2,550 acres (75%) of the IUZ from surface disturbance along with protection of 90% of Verbena and onion populations and 80% of lomatium and soaproot populations affords additional protection for these species. However, the combined protection in both the RUZ and IUZ would not be enough to keep these plants from eventually being listed as endangered.

The impacts from construction of a staging area would be the same as for Alternative 1.

The impacts from prescribe burning on these particular plants are unknown; however, they would probably be beneficial if conducted in late summer/early fall when wildfires naturally occur in this area.

Additionally, plants may be negatively impacted by:

1. Sale of the 40 acre parcel without deed restrictions to protect Coyote thistle habitat.

2. A shooting area in the RUZ which may encourage greater use and impacts to plants.

3. Authorizing fuelwood sales of digger pines.

4. Issuing new grazing leases. This is especially true for California verbena, as it can only withstand light grazing.

Leaving the gate open to Six-Bit/Poor Man's Gulch during the winter increases the potential for harassment of Bald eagles on their roosting area.

Unique soils would be fully protected on 40 acres, thereby ensuring an undisturbed sample of these soils. Soils will also be protected on 5,880 acres in the Management Area where no surface disturbance would be allowed. A total of 1,220 acres could be adversely impacted from ORV use, trail construction and other surface disturbances. Short-term erosion would be associated with areas burned by prescribe fire.

The impacts associated with this issue would allow achievement of Objective No. 2, but not Objectives No. 1 and No. 3.

Issue 2 -- Land Tenure Adjustments

Constraints dictated by the two use zones allows for more flexibility for future land tenure adjustments.

Issue 3 -- Unauthorized Use

Same as Alternative 1 for the impacts of developing a cooperative agreement with the Sheriff's Department. Allowing the sale of only 9 cords/yr. would do little in encouraging or discouraging illegal cutting.

Issue 4 -- Indiscriminate Shooting

Same as Alternative 1, but an additional shooting area in section 27 may alleviate congestion that would take place at a single shooting area.

Issue 5 -- Off-Road Vehicle Use

Off-road vehicle opportunities would be greatly enhanced. All current trails plus 2.5 miles of additional trails would be available for ORV

use. The impacts of a staging area and signing property boundaries are the same as in Alternative 1.

The impacts associated with this issue would allow for full achievement of Objective No. 5.

Issue 6 -- Wildfires

Without a modified suppression plan, the impacts of fire suppression activities, especially impacts caused by heavy equipment in line construction, would continue.

Prescribe burning would reduce the wildfire hazard on 1,500 acres.

Other Impacts:

Wildlife -- Protection of riparian habitat would benefit all fish and most wildlife in RUZ. The lack of protection of habitat in IUZ would have adverse impacts on most wildlife.

Water guzzlers would provide a permanent water source for every 1/2 mile radius. The impacts of turkey releases are the same as Alternative 1.

Fuelwood sales would remove some snag and dead and down material from wildlife habitat.

Cultural Resource -- Sites in riparian areas of the IUZ may be adversely impacted. Without a modified suppression plan, sites could continue to be impacted by fire suppression activities.

Alternative 3 -- Minimum Use

Issue 1 -- Protection of sensitive plant species, Bald eagle habitat, and unique soils.

This alternative provides maximum protection of sensitive plants, Bald eagle habitat and unique soils. Protection of 4,410 acres (98%) of the RUZ from surface disturbance along with protection of 100% of all sensitive plant populations would more than adequately protect these species. In the IUZ 2,340 acres (90%) would be protected from surface disturbance along with 100% of all sensitive plant populations. The combined protection in both use zones would ensure that official listing would be unnecessary for sensitive plant species.

Additional positive impacts to plants are derived from:

1. Protecting the entire "canyon" along Red Hills Road as a view zone.

2. Eliminating fuelwood sales.

3. Rehabilitating the staging area

4. Putting to bed 18.5 miles of ORV trails

Unique soils would be specifically protected on 980 acres. Soils also would be protected on 6,750 acres in the Management Area where no surface disturbance would be allowed.

The impacts associated with this issue would allow full achievement of Objectives 1, 2, and 3.

Issue 2 -- Land Tenure Adjustments

Constraints dictated by the two use zones allows for less flexibility than Alternative 1 and 2 in dealing with future Land Tenure Adjustments.

Issue 3 -- Unauthorized Use

Same as Alternative 1 for impacts of developing a cooperative agreement with the Sherrif's Department and prohibiting fuelwood sales.

Issue 4 -- Indiscriminate Shooting

Same as Alternative 1.

Issue 5 -- Off-Road Vehicle Use

Off-road vehicle opportunities would be curtailed. Eighteen and one-half miles of current trails would be put to bed. Not only would there be no developed staging area, the current area used for this purpose would be rehabilitated.

Impacts of signing boundaries are the same as Alternative 1.

The impacts associated with this issue would not allow achievement of Objective No. 5.

Issue 6 -- Wildfires

Same as Alternative 1.

Other Impacts:

Wildlife -- Same as Alternative 1.

Minerals -- Same as Alternative 1.

Cultural Resource -- Same as Alternative 1

Alternative 4 -- No Action

Issue 1 -- Protection of sensitive plant species, Bald eagle habitat, and unique soils.

Plant habitat and surface protection would be considered on a case-by-case basis. Riparian areas or unique soils (Objective No. 3) receive no special protection in the Management Area.

The impacts to plant habitat (especially lomatium and soaproot) caused by the following, would continue:

1) trellis of ORV roads and trails
2) destruction of digger pines by indiscriminate shooters
3) expanding "staging" area.

Impacts to Bald eagles are the same as Alternative 1

Past experience reveals that this type of management is not enough to keep sensitive plants from eventually being listed as endangered (Objective No. 1).

Issue 2 -- Land Tenure Adjustments

Same as Alternative 3 for impacts of sale of 40-acre parcel. All Land Tenure Adjustments are considered on a case-by-case basis.

Issue 3 -- Unauthorized Use

Unauthorized use would continue. Illegal dumping and fuelwood trespass would continue to be a major problem.

Issue 4 -- Indiscriminate Shooting

Indiscriminate shooting. would continue to make for unsafe conditions for other recreational users. Destruction of digger pines by plinkers would continue.

Issue 5 -- Off-Road Vehicle Use

As there has been no demand by ORV'ers to use the southern half, there would be little impact to ORV opportunities under this alternative. However, ORV enthusiasts would derive no benefits from new trails or a developed staging area that would be built under Alternative 1 in the IUZ.

Issue 6 -- Wildfires

Same as Alternative 2 for the impacts of not developing a modified suppression plan. Same as Alternative 1 for impacts of not prescribe burning.

Other Impacts:

Wildlife -- The lack of protection of riparian habitat negatively impact fish species. Sale of digger pines decreases the structure of wildlife habitat. No benefits would be derived from the proposed water guzzlers.

Cultural Resources -- Same as Alternative 2.

Table 2. Comparison of achievement of objectives by the Planned Actions under the four alternatives.

	Objectives[a]								
	1	2	3	4	5	6	7	8	9
Alternative 1	+	+	+	+	+	+	+	+	+
Alternative 2	–	+	–	+	++	++	+	–	–
Alternative 3	++	++	++	+	–	+	+	+	++
Alternative 4	–	+	–	–	+	–	–	–	–

[a] See objectives stated in Chapter 1
\+ Achieves objective
– Fails to meet objective
++ Exceeds objective

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

Irreversible and irretrievable commitments of resources resulting from implementation of the alternatives are described below. The term "irreversible" refers to use that is incapable of being reversed. Once initiated, use would continue. The term "irretrievable" means essentially irrecoverable or not reasonable retrievable. Once used, the resource would not be readily replaceable.

Under Alternatives 1, 2, and 3 project construction would involve the following commitments:

1. Energy and labor expended for projects would be irretrievable.

2. Prescribed burning in Alternative 2 and road rehabilitation and construction of new roads under Alternative 1, 2, and 3 would cause the irretrievable loss of soil associated with the first storms following the burns and construction. The vegetation loss through burning would not be irreversible due to the nature of chaparral. However, since the effects of prescribed burning on the sensitive plants found in the Red Hills is unknown, the irretrievable loss of sensitive plants within the burn perimeter could occur.

- Prescribed burning may cause the loss of some wildlife species associated with decadent chaparral. The species lost are irretrievable, including their potential offspring.

Prehistoric and historic cultural resources are fragile and non-renewable. Any loss, whether inadvertent through natural processes or planned (such as salvage excavation), constitutes an irretrievable commitment of the resource.

Breakage, illicit collecting, and disassociation of artifacts through erosion or trampling would constitute a loss in the present archaeological data base which is not retrievable.

MITIGATING MEASURES

1. Impact - Surface disturbance from fire fighting activities. Mitigation - Work in conjunction with the California Department of Forestry in rehabilitating any new fire lines created during wildlife suppression activities.

2. Impact - Surface disturbance from proposed developments. Mitigation - Soil disturbance and removal of vegetation will be limited to the minimum necessary for any proposed developments.

3. Impact - Soil erosion associated with ORV activity and trail construction. Mitigation - Water bars, outsloping and ditches will be used to divert water from roads and trails. Soil erosion will still occur, but at a reduced rate.

UNAVOIDABLE ADVERSE IMPACTS

Alternative 1:

1. Moderate soil erosion will occur on 745 acres from ORV use, trail construction and other surface disturbing activities.

2. A total of 5% of the lomatium and soaproot populations, and 7% of the onion population may be negatively impacted.

3. Five acres of potential habitat for the soaproot and lomatium would be adversely impacted by the staging area.

Alternative 2:

1. Some soil erosion will occur on 1220 acres from ORV use, trail construction and other surface disturbing activities.

2. A total of 15% of the Verbena and onion populations and 30% of the lomatium and soaproot populations may be negatively impacted.

3. Five acres of potential habitat for the soaproot and lomatium would be adversely impacted by the staging area.

Alternative 3:

1. Some soil erosion will occur on 350 acres from ORV use and surface disturbing activities.

Alternative 4:

1. Continued soil erosion and deterioration of sensitive plant habitat from ORV use and surface disturbing activities.

2. Continued impacts from unauthorized use and indiscriminate shooting.

SHORT-TERM VERSES LONG-TERM PRODUCTIVITY

This section identifies the trade offs between short-term use and long-term productivity of resources involved in the alternatives. For this analysis, "short-term" refers to the period of project implementation within about five years, and "long-term" refers to the period of 20 years or beyond in which the alternatives adverse or beneficial impacts would still occur.

Initial construction of recreation facilities (roads, trails, shooting area, and staging area) would result in short-term impacts to soils but long-term increase in recreation opportunities.

Water developments would result in short-term soil disturbance but long-term increases in wildlife populations.

Disposal of public lands would result in a short-term economic gain but long-term loss of present and potential public land values.

Prescribe burning could cause short-term disruption in wildlife, recreation and visual resource relationships. Long-term effects include productive chaparral management, better animal distribution, increased vegetation quality and quantity.

CHAPTER 5

CONSULTATION AND COORDINATION

Public Involvement

The public was informed of a public meeting to obtain their input for the preparation of a Management Plan for the Red Hills by an information letter mailed out August 16, 1983, and a Federal Register notice published July 28, 1983.

Public input from this meeting and letters and other miscellaneous contacts assisted in the finalization of issues and alternatives for this Management Plan. Much information was obtained through consultation at a working level with other Federal, State, and local agencies.

Agencies, Organizations, and Individuals receiving a copy of this Document.

Agencies and Organizations:

U.S. Fish and Wildlife Service
California Department of Fish and Game-Region 4
Tuolumne County Board of Supervisors
Tuolumne County Planning Commission
Natural Resources Defense Council
Red Hills Sportsman Association
California Assoc. of 4-Wheel Drive Clubs, Inc.
Stanislaus Audubon Society
Great Valley Museum of Natural History

Individuals:

Roger Alderman, Sonora, CA
Warren Appling, Sonora, CA
Ross Baker, Tuolumne City, CA

Doug Barton, Ceres, CA
Hartley & Curt Bush, Oakdale, CA
Kenneth Calhoun, Modesto, CA
Floyd Carne, Chinese Camp, CA
Peter Chamberlain, Sonora, CA
David Considine, Oakdale, CA
Lincoln Constance, Berkeley, CA
Pete Dohms, Jamestown, CA
Harry Durlany, Modesto, CA
Ruby Fales, Modesto, CA
Stephen Fentress, Stockton, CA
Margret Flesher, Modesto, CA
Harry Hartman, Jamestown, CA
Richard Hazelwood, San Francisco, CA
L. R. Heckard, Berkeley, CA
John Herrick, Modesto, CA
Alice Q. Howard, Oakland, CA
Morris & Isabel Hunter, Oakdale, CA
Sonia Hurt, Columbia, CA
Shelby Hutchinson, Modesto, CA
Hans Jenny, Berkeley, CA
A. F. Jepson, Chinese Camp, CA
Michael Linn, Modesto, CA
Bill Lundgren, Jamestown, CA
Jim Maddox, Sonora, CA
Carlo Michelotti, Stockton, CA
John Mills, Sonora, CA
John Moyle, Sonora, CA
James Nuzum, Sonora, CA
Carol & Carolyn Perry, Chinese Camp, CA
Blaine Rodgers, Sonora, CA
Roy Schmidt, Modesto, CA
William Sienkowski, Jamestown, CA
Helen Spencer, Modesto, CA
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John Wallin, Manteca, CA

List of Preparers:

David Moore, Range Conservationist
Reynaud Farve, Wildlife Biologist
David Harris, Outdoor Recreation Planner
Andrew Yatsko, Archeologist
Kevin Clarke, Outdoor Recreation Planner/Realty Specialist
David Conklin, Outdoor Recreation Planner

List of Reviewers:

John Willoughby, Range Conservationist
John Key, Soil Scientist
Mike Ferguson, Wildlife Biologist

GLOSSARY

ACEC	-	Area of Critical Environmental Concern
BLM	-	Bureau of Land Management
CNPS	-	California Native Plant Society
EA	-	Environmental Assessment
ES	-	Environmental Statement
FLPMA	-	Federal Land Policy and Management Act of 1976
GUZZLER	-	Wildlife water development that collects and stores rainwater
IUZ	-	Intensive Use Zone
MFP	-	Management Framework Plan
ORV	-	Off Road Vehicle
RUZ	-	Restricted Use Zone

APPENDIX A

List of common plant and animal species found in Red Hills.

Trees

Pinus sabianiana	Digger Pine

Shrubs

Adenostoma fasiculatum	Chamise
Arctostaphylos manzanita	Parry manzanita
Ceanothus cuneatus	Buckbrush
Eriodictyon Californica	Yerba Santa
Heteromeles arbutitolia	Toyon
Quercus dumosa	Scrub oak
Rhamnus californica	Coffeeberry
R. crocea spp. ilicifolia	Redberry
Toxicodendron diversilobum	Poison-oak

Grasses

Avena barbata Slender Wild oat

Bromus mollis Soft chess

B. rubens Red brome

Festuca microstachys Little fescue

Gastridum ventricosum Nitgrass

Melica California Oniongrass

Poa scabrella Pine bluegrass

Sitanion hystrix Squirreltail grass

S. jubatum Big squirreltail grass

Forbs

Allium sanbornii var. tuolumnense	Rawhide Hill Onion
Brodiaea elegans	Harvest brodiaea

Galium nuttallii Bedstraw

Gilia capitata Gilia

Calochortus albus	Fairy lantern
Chlorogalum grandiflorum	Red Hills soaproot
Clarkia biloba	Farewell-to-spring
Dichelostemma pulchellum	Blue dicks
Eriogonum tripodum	Wild buckwheat
E. vimineum	Wild buckwheat
Erygium Pinnatisectum	Coyote Thistle
Eschscholzia californica	California poppy
Eriophyllum lanatum	Common woolly sunflower
Orthocarpus lacerus	Owl's clover
Plantago erecta	Foothill plantain
Sannicula bipinnitifida	Purple sanicle
Senecio clevelandii var. heterophyllus	Chinese Camp butterweed
Verbena california	California vervain

Mammals

Canis latrans	Coyote
Lepus californicus	Jackrabbit
Odocoileus hemionus	Blacktail deer

Birds

Haliaeetus leucocephalus	Bald eagle
Lophortyx californicus	California quail
Meleagris gallopavo	Turkey
Zenaidura macroura	Morning dove

Hesperolinon micranthum	Flax
Lomatium congdoni	Congdon's lomatium
Lotus purshianus	Spanish clover
Micropus californicus	Micropus
Microseris spp.	Microseris
Mimulus guttatus	Monkey flower
Monardella spp.	Monardella
Odontostomum hartwegii	Odontostomum

Fishes

Catostomus offidentalis	Sacramento sucker
Gambusia affinis	Mosquito fish
Hesperoleucus symmetricus	California roach
Lepomis cyanellus	Green sunfish
Micropterus salmoides	Large-mouth bass

APPENDIX B

RARE PLANTS AND SERPENTINE SOILS

Serpentine areas in the Sierra foothills were forged when ultrabasic rock (serpentine) of the Jurassic period (136 - 190 million years ago) of the Mesozoic Era intruded (penetrated) warped, and uplifted older metamorphic rock of the Paleozoic Era (225 - 570 million years ago). These areas occur chiefly in discrete zones within the foothill fault system, i.e., between the Melones and Bear Mountain fault zones. They also generally crop out in long slender lens-shaped deposits and belts which tend in a northwest-southeast direction (Clark, 1960).

Since soils are usually a product of the decomposed bedrock mixed with vegetative matter, the chemical composition of the bedrock has a direct influence on the soil that may develop. The characteristics of mesozoic ultrabasic intrusive rocks (serpentine) have already been discussed (see the "Soils" section in the "AFFECTED ENVIRONMENT"). These serpentine soils, with their unique characteristics, are generally vastly different from nearby soils and tend to create "ecological islands" for some plant taxa that have adapted specifically to survive under the given soil conditions (Stebbins, 1942; Stebbins, 1978).

The restriction of plant taxa to certain soil types (edaphic endemism) is a common phenomenon in California (Mason, 1946). These restricted taxa are often rare species because the soil environment that they are associated with is of an uncommon type. This does not mean that these plants require a certain soil type. Rather, these plants occur on these unique soils because they are unable to compete with other plants on more fertile sites (Griggs, 1940); Kruckeburg, 1951; Kruckeburg, 1954).

APPENDIX C

SENSITIVE PLANTS IN THE RED HILLS

Name: Allium sanbornii var. tuolumnense (Rawhide Hill Onion)
Family: Liliaceae (Lily family)
Status: State - not listed; CNPS-(No. 2, 2-2-1-3)[a]
Federal - under review, candidate for listing on endangered or threatened.
Description: See Abrams (1923:390); Munz (1968:1376)
Flowering time: May
Reproduction: Probably only by seed as bulb is found deep in rocks which may restrict spread by vegetative means.
Distribution: Red Hills, Rawhide Hill - Tuolumne County
Niche: Found under digger pines at the edges of gullies in the rocky Delpiedra soils. The plants are always found in patches and never as individuals (Rogers, 1982).

Name: Lomatium congdonii (Congdon's lomatium)
Family: Apiaceae (Carrot family)
Status: State - not listed; CNPS-(No. 2, 2-2-1-3)[a]
Federal - under review, candidate for listing as endangered or threatened.
Description: See Abrams (1951:260); Munz (1968:1025)
Flowering time: April to mid-June
Distribution: Throughout the Red Hills
Niche: Serpentine derived soils (Delpiedra series) which are sloping and loose. Associated with digger pines - especially at their drip-lines. Frequently the soil has been disturbed by gophers or shaped by rill erosion. More common on north aspects without dense understory and on ridgetops (Rogers, 1982).

Name: Chlorogalum grandiflorum (Red Hills soaproot)
Family: Liliaceae (Lily family)

Status: State - not listed; CNPS-(No. 2, 2-1-1-3)[a]
Federal - under review, candidate for listing as endangered or threatened

Description: Munz (1968:1329)

Flowering time: Late May - early June. Flowers open in late afternoon and remain so throughout the night, withering the next morning.

Reproduction: Probably only by seed.

Distribution: Throughout the Red Hills and Peoria Basin.

Niche: Serpentine derived soil (Delpiedra series) and outcrops. Ideally in outcrops of weathered serpentine rocks, to a lesser extent in cobble serpentine soils. Never in wet clay soils or soil without cobbles (Rogers, 1982).

Name: Verbena californica (California vervain/verbena)

Family: Verbenaceae (Vervain family)

Status: State - not listed; CNPS-(No. 2, 2-3-1-3)[a]
Federal - under review, candidate for listing as endangered or threatened

Description: See Munz (1968:688; and suppl.:101)

Flowering time: May - July

Distribution: Throughout the Red Hills

Niche: Stream sides where water is abundant during the blooming season. Commonly found among rocks in the stream and on streambanks (Rogers, 1982).

Name: Erygium pinnatisectum (Coyote thistle)

Family: Umbelliferae

Status: State - not listed; CNPS (No. 3, 1-2-2-3)
Federal - under review, candidate for listing as endangered or threatened

Description: Munz (1968:1032); Abrams (1951:279)

Flowering time: June - August

Distribution: In foothills from Amador to Sacramento and Tuolumne Counties

Niche: Vernal pools

[a]California Native Plant Society Rarity - Endangerment - Vigor - Distribution Code; List No. 2 = rare and endangered; List No. 3, rare but not endangered; 1-1-1-1 = rare - not endangered - stable - not rare outside California; 2-2-2-2 = several occurrences - endangered portion of range - declining - rare outside California; 3-3-3-3 = one or few restricted occurrences - endangered throughout range - approaching extinction - endemic to California.

REFERENCES

Abrams, L. 1923. Illustrated Flora of the Pacific States. Vol. I. Stanford University Press, Stanford, California

Abrams, L. 1951. Illustrated flora of the Pacific States. Vol. III. Stanford University Press, Stanford, California

Clarke, L. 1960. Foothill fault system, Western Sierra Nevada, California Bull. of the Geol. Soc. of Amer. 71:483-496.

Griggs, R. 1940. The ecology of rare plants. Bull. Torrey Bot. Club 67:565-594.

Kruckeberg, A. 1951. Intra specific variability in the response of certain native plant species to serpentine soil. Amer. J. Bot. 38:408-419.

Kruckegerg, A. 1954. Plant species in relation to serpentine soils. Ecology 35:267-274.

Mason, H. 1946. The edaphic factor in narrow endemism. I. The nature of environmental influences. Madrono 8:209:-240.

Munz, P. 1968. A California flora with supplement. University of Calif ornia Press, Berkeley, California.

Rogers, B. 1982. A survey for rare and endangered vascular plants of the New Jersev Zinc exploration company project. Unpub. report on-file with the Folsom Resource Area.

Stebbins, G. 1942. The genetic approach to problems of rare and endemic species. Madrono 6:241-272.

Stebbins, G. 1978. Why are there so many rare plants in California? I. Environmental factors. Fremontia 6:6-10.

R.13 E.

R.14 E.

MAP 2
Fire History from 1960–Present

Graphic Scale
0 .5 1 mi.
50 ft. Contour Intervals

T.1S.

Se '82
Se '69
Oc '78
Je '64
Ma '73
Au '65
Jy '65
Jy '73
Je '69
Jy '77
Jy '82
Ma '79
Se '77
Je '79
Jy '75
Se '79
Je '79
Au '60
Jy '80

Chinese Camp
Taylor Hill
Hungry Hill
Primea House
Don Pedro Reservoir

Public Land

R.13 E.

R.14 E.

T.1S.

MAP 3

Alternative 1 -
Proposed Action

Graphic Scale
0 .5 1 mi.

50 ft. Contour Intervals

N

Intensive Use Zone

Restricted Use Zone (ACEC)

Land for Disposal

Protected Soil Sites

Sensitive Plant Conc.:

- California Verbena
- Rawhide Hill Onion
- Coyote Thistle
- Congdons Lomatium/ Red Hill Soaproot

Public Land

R.13 E.

R.14 E.

MAP 4
Alternative 1-
Proposed Actions (Cont.)

Graphic Scale
0 .5 1 mi.
50 ft. Contour Intervals

N

T.1S.

Chinese Camp

Taylor Hill

Hungry Hill

Grizzly Hill

Grizzly Flat

Crimea House

Gulch

Poor Man's

Gulch

Closed Roads
Open Roads
Proposed trails
View Zone
Interpretive Signs
Boundary Signs
Shooting Area
Staging Area
Guzzler
Gate
R&PP Lease
Public Land

R.13 E.

R.14 E.

T.1S.

MAP 5
Alternative 2–
Maximum Use

Graphic Scale
0 .5 1 mi.
50 ft. Contour Intervals

N

Intensive Use Zone
Restricted Use Zone
Land for Disposal
Protected Soil Sites

Public Land

R.13 E.

R.14 E.

MAP 6
Alternative 2-
Maximum Use (Cont.)

Graphic Scale
0 .5 1 mi.
50 ft. Contour Intervals

N

T.1S.

Chinese Camp

Taylor Hill

Hungry Hill

Primea House

Red Hills

Mans Gulch

Big Gulch

Don Pedro Reservoir

- Proposed trails
- Interpretive Signs
- Boundary Signs
- Shooting Areas
- Staging Areas
- Burn Units
- Guzzler
- Gate
- R&PP Lease

Public Land

R.13 E.

R.14 E.

T.1 S.

MAP 7

Alternative 3-
Minimum Use

Graphic Scale
0 .5 1 mi.
50 ft. Contour Intervals

N

Intensive Use Zone
Restricted Use Zone (ACEC)
Protected Soil Sites

Public Land

R.13 E.

R.14 E.

MAP 8
Alternative 3– Minimum Use (Cont.)

Graphic Scale
0 .5 1 mi.
50 ft. Contour Intervals

T.1S.

Chinese Camp

Taylor Hill

Hungry Hill

Crimea House

Poor Man's Gulch

Big Gulch

Open Roads
View Zone
Interpretive Signs
Boundary Signs
Shooting Area
Fence
Guzzler
Gate
R&PP Lease
Public Land

R.13 E.

R.14 E.

T.1S.

MAP 9

Alternative 4–
No Action

Graphic Scale
0 .5 1 mi.

50 ft. Contour Intervals

N

Chinese Camp

Taylor Hill

Hungry Hill

Primea House

North half
South half
R&PP Lease
x Unauthorized Dumps
Indiscriminate Shooting
Gate

Public Land

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225